UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,327	08/19/2003	Jean Khawand	CE11193JI210	4001

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EXAMINER
SORRELL, ERON J

ART UNIT	PAPER NUMBER
2182	

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/643,327	KHAWAND ET AL.
	Examiner	Art Unit
	Eron J. Sorrell	2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07 August 2006</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-19</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-19</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>19 August 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Specification

1.   The specification is objected to as failing to provide
proper antecedent basis for the claimed subject matter. See 37
CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the
following is required: independent claims 1,11, and 15 recite
language concerning the first processor *exclusively* dynamically
allocating message buffers to a second processor (emphasis
added). The term "exclusively" is not used in the specification
therefore the applicant's intended meaning of the term
"exclusively" is unclear to the examiner.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35
U.S.C. 112:

> The specification shall conclude with one or more claims particularly
> pointing out and distinctly claiming the subject matter which the applicant
> regards as his invention.

3.   Claims 1-19 are rejected under 35 U.S.C. 112, second
paragraph, as being indefinite for failing to particularly point
out and distinctly claim the subject matter which applicant
regards as the invention.

4.   In light of the objection to the specification, supra, it
is unclear to the Examiner how the term "exclusively" is to be
interpreted. Given the context of its use in the claim
language, the term "exclusively" can be construed to mean that
the first processor exclusively allocates a message buffer to
the second processor based on a request from the second buffer
(i.e. when the first processor acts as a master). This
interpretation suggests that the second processor can act as a
master in a different mode of operation, especially since the
specification states that both processors can be of the same
type (see lines 9-10 of page 3). Alternatively, the term
"exclusively" can be interpreted to mean that only the first
processor can allocate a message buffer under all operating
conditions. Since the term "exclusively" is not used in the
specification, the Examiner cannot properly determine the
applicant's intended meaning of the term.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which
forms the basis for all obviousness rejections set forth in this
Office action:

> (a) A patent may not be obtained though the invention is not identically
> disclosed or described as set forth in section 102 of this title, if the
> differences between the subject matter sought to be patented and the prior
> art are such that the subject matter as a whole would have been obvious at

the time the invention was made to a person having ordinary skill in the
art to which said subject matter pertains. Patentability shall not be
negatived by the manner in which the invention was made.

6.   Claims 1-3,7-11,15,18, and 19 are rejected under 35 U.S.C.

103(a) as being unpatentable over Johanson et al. (U.S. Patent

No. 6,912,716 hereinafter "Johanson") in view Ellsworth et al.

(U.S. Patent No. 6,131,113 hereinafter "Ellsworth").

7.   Referring to apparatus claim 1 and method claim 11,

Johanson teaches an electronic device, comprising:

a first processor (item 500, figure 4);

a second processor coupled to the first processor (item

502, figure 4);

shared memory coupled to the first and second processors;

and

Johanson teaches the first processor manages the shared

memory and exclusively allocates a message buffer to the second

processor based on a specific request from the second processor

to send a message to the first processor (see lines 31-43 of

column 5, note only the first processor allocates memory to the

second processor when the second processor requests additional

memory). *This limitation is taught by Johanson if the term*

"exclusively" is given the first possible interpretation

mentioned in the 112 second paragraph rejection (emphasis added).

Johanson fails to teach the first processor sends a message buffer pointer to the second processor that directs the second processor to the message buffer.

Ellsworth teaches in an analogous system, the first processor exclusively allocating the shared memory (see lines 16-37 of column 3, note the shared resource disclosed by Ellsworth is shared memory (see lines 7-12 of column 5)). *This limitation is taught by Ellsworth if the term "exclusively" is given the second possible interpretation mentioned in the 112 second paragraph rejection* (emphasis added). Ellsworth further teaches sending a message buffer pointer (see lines 23-39 of column 6) to the second processor that directs the second processor to the message buffer (see paragraph bridging columns 8 and 9, note the pointer is sent to the second processor via the resource queue).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Johanson with the above teachings of Ellsworth. One of ordinary skill would have been motivated in order to reduce the overhead associated with other methods of sharing memory

between two processors as suggested by Ellsworth (see lines 51-67 of column 3).

8.   Referring to claim 2, Johanson teaches the first processor responds to a reception of an empty buffer request from the second processor (see lines 31-43 of column 5), and Ellsworth teaches sending the message buffer pointer to the second processor (see paragraph bridging column 8 and 9).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the apparatus of Johanson with the above teachings of Ellsworth for the same reasons as mentioned in the rejection of claim 1, *supra*.

9.   Referring to claim 3, Johanson teaches after receiving the message buffer pointer the second processor fills the message buffer with the message (see lines 51-57 of column 5).

10.   Referring to claim 7, Johanson teaches a plurality of buffers assigned to the second processor are located in the shared memory (see item 44 in figure 1A).

11. Referring to claim 8, Johanson teaches the plurality of

buffers assigned to the second processor are used by the second

processor without having to request them from the first

processor (see lines 18-27 of column 4).

12. Referring to claim 9, Johanson teaches that when the second

processor needs to send a message to the first processor it

loads a starting address of the message in one of the plurality

of buffers assigned to the second processor (see lines 18-27 of

column 4).

13. Referring to claim 10, Ellsworth teaches in an analogous

system having first and second processor and a shared memory for

use in telecommunications applications wherein the device is a

radio device (see lines 25-33 of column 9).

It would have been obvious to one of ordinary skill in the

art at the time of the applicant's invention to modify the

apparatus of Johanson with the above teachings of Ellsworth

because Johanson suggests the device is used in

telecommunication applications (see lines 62-67 of column 6).

14. Referring to claim 15, Johanson teaches a method for

providing inter-processor communication between first and second

processors using a shared memory (see paragraphs bridging

columns 2 and 3), the first processor assigned to manage the

shared memory, the method comprising the steps of: at the first

processor:

(a) exclusively dynamically allocating a memory buffer from

the shared memory for use in loading a message to be sent to the

second processor in response to a specific request from the

second processor (see lines 51-63 of column 5); *This limitation*

is taught by Johanson if the term "exclusively" is given the

first possible interpretation mentioned in the 112 second

paragraph rejection (emphasis added);

(b) loading the message in the memory buffer (see lines 51-

63 of column 5).

Johanson fails to teach sending a message buffer pointer to

the second processor that directs the second processor to the

message buffer.

Ellsworth teaches in an analogous system, the first

processor exclusively allocating the shared memory (see lines

16-37 of column 3, note the shared resource disclosed by

Ellsworth is shared memory (see lines 7-12 of column 5)). *This*

limitation is taught by Ellsworth if the term "exclusively" is

given the second possible interpretation mentioned in the 112

second paragraph rejection (emphasis added). Ellsworth further

teaches sending a message buffer pointer (see lines 23-39 of column 6) to the second processor that directs the second processor to the message buffer (see paragraph bridging columns 8 and 9, note the pointer is sent to the second processor via the resource queue).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Johanson with the above teachings of Ellsworth. One of ordinary skill would have been motivated in order to reduce the overhead associated with other methods of sharing memory between two processors as suggested by Ellsworth (see lines 51-67 of column 3).

15. Referring to claim 18, Johanson teaches the first processor sending the starting address of the allocated memory buffer to a memory located in the second processor (see lines 18-36 of column 6).

16. Referring to claim 19, Johanson teaches the first processor sends an interrupt to the second processor once it has loaded the starting address of the allocated memory buffer in the memory located in the second processor (see lines 18-36 of column 6).

17.   Claims 4-6,12-14,16, and 17 are rejected under 35

U.S.C. 103(a) as being unpatentable over Johanson in view of

Ellsworth as applied to claims 1,11, and 15 above, and further

in view of McKenney et al. (U.S. Patent No. 6,823,511

hereinafter "McKenney").

18.   Referring to method claims 4-6 and apparatus claims 12-14,

and apparatus claims 16 and 17, the combination of Johanson and

Ellsworth teaches the first processor reads the message from the

shared memory after it has been written by the second processor

and the first processor releasing the message buffer after the

message has been read (see Johanson, see lines 38-48 of column

4).

The combination of Johanson and Ellsworth fails to teach

the second processor passes the message buffer pointer to the

first processor and the first processor reading the message from

the buffer in response to receiving the message buffer pointer.

McKenney teaches, in an analogous system, returning a

pointer from a second processor to a first processor that

previously sent the pointer to the second processor for reading

a message from the second processor to the first processor (see

lines 40-45 of column 11).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Johanson and Ellsworth with the above teachings of McKenney in order to provide proper synchronization between the processors by only allowing one processor at a time to access the shared memory (see lines 6-15 of column 2).

Response to Arguments

19.   Applicant's arguments with respect to claims 1,11, and 15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

20.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will

expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.
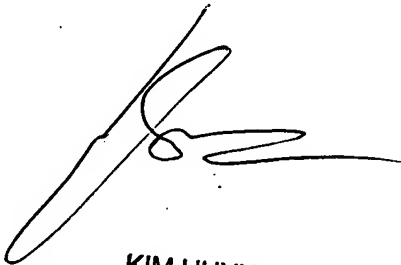
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eron J. Sorrell whose telephone number is 571 272-4160. The examiner can normally be reached on Monday-Friday 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on 571-272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EJS
October 10, 2006

KIM HUYNH
SUPERVISORY PATENT EXAMINER

10/16/r6